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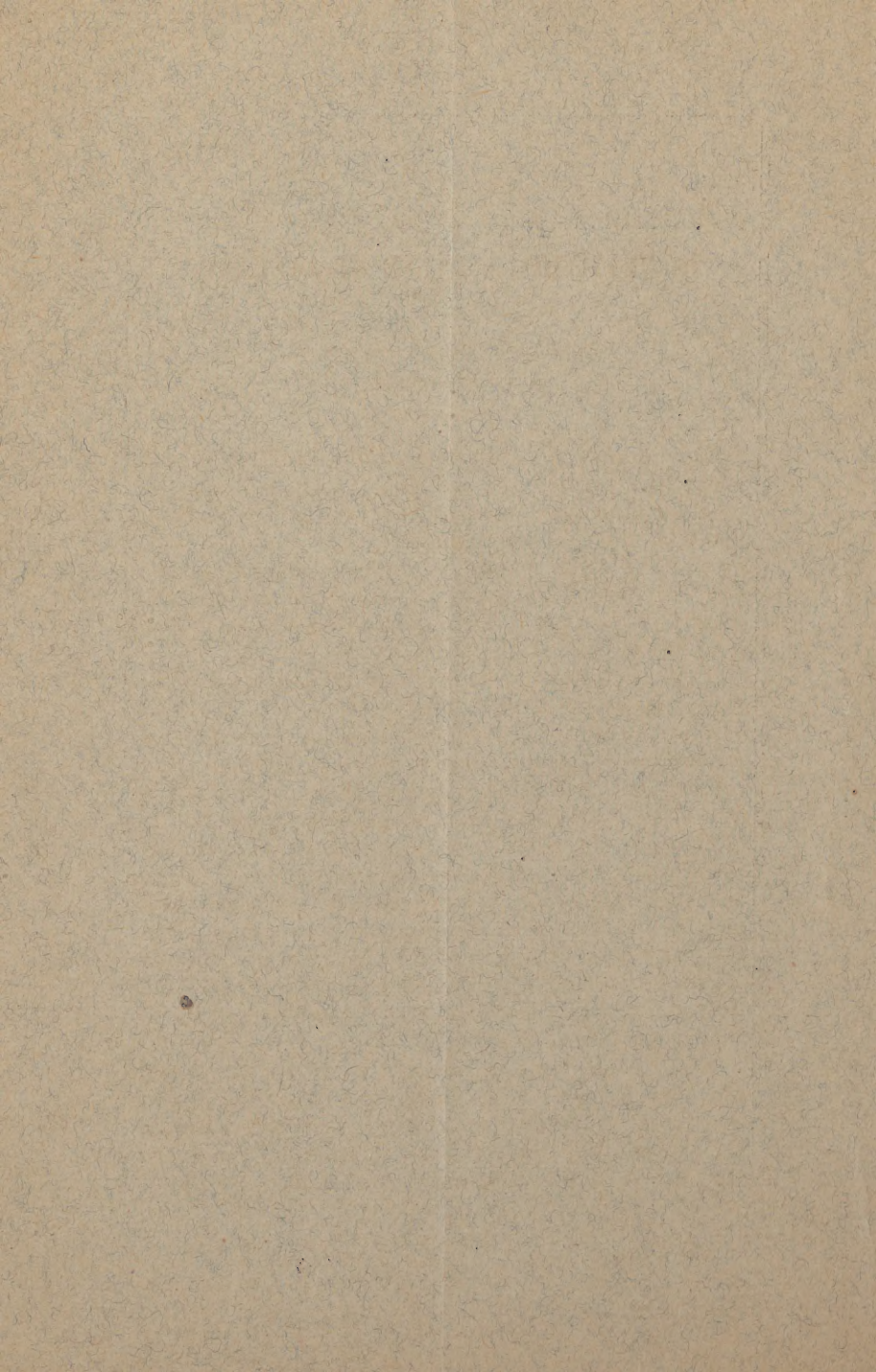
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IS DENTITION A CAUSE OF DISEASE?

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WASHINGTON, D. C.

The process of dentition has interested me since I began the practice of medicine. It is perhaps the most striking phenomenon occurring in the development of the human organism, because we *see* the hard, bony teeth emerge in definite order from the softer tissues of the gums and range themselves uniformly in the jaws. There is nothing comparable to it in the growth of the body.

This eruption of the teeth is viewed with great solicitude by the anxious mother, and no little concern by the family physician, and many years ago this proverb was current, that "parents could not truly rejoice in their children before they had cut their eye teeth." Having been one of a large family of children, I was no stranger to the notion that dentition was a cause of disease, and sometimes of death, so that as a student of medicine my mind was well prepared to receive the teaching of the masters—that the eruption of the teeth is a fruitful cause of disease—and the doctrine was cherished as having been "delivered by the saints," and was subject to "no variation or shadow of turning."

And this doctrine seems still to be in full force, for, by reference to the text-books of to-day, I find that many of the diseases of infancy are attributed to the evolution of the teeth, and in scanning the mortuary tables in the "Report of the Health Officer of



the District of Columbia for 1885" I find as many as *sixty-six* deaths ascribed to dentition as the primary cause. If it be true that dentition is the cause of so many deaths, then, indeed, has nature been lamentably inadequate to the necessity of properly providing for the growth and development of children, in making the evolution of the teeth, which is a *necessary* and *inevitable* process, a cause of death, and thereby defeating her own purpose. From observation and thought, however, I am persuaded that nature has not been at fault, but the error lies in assigning a cause for the disease, and dentition is a most convenient scapegoat. I know that this opinion is at variance with the popular idea, as well with the bulk of the practitioners of medicine as with the laity, and the purpose of this paper is to stimulate thought upon the subject, that nature may be justified and the ailments of infancy assigned to their true causes. To this end, it will be of interest to consider the development and eruption of the teeth.

According to Goodsir, the teeth are developed from the mucous membrane covering the edges of the maxillary arches; beginning in the upper jaw, about the sixth week of fetal life, by the formation of a depression, called the primitive dental groove, from the floor of which the germs of the milk teeth are developed.

These germs, which are formed by a conical elevation of mucous membrane, make their appearance in the following order: At the seventh week, that of the first deciduous molar of the upper jaw; at the eighth week, that of the canine tooth; the incisors about the ninth week; the second molar papilla at the tenth week.

And the germs of the teeth of the lower jaw follow in the same order, being developed a little later. After the papillary stage of development, the dental groove contracts and is converted into follicles for the recep-

tion of the papillæ, the follicles becoming the alveoli lined by periosteum.

From the follicular to the saccular stage the development is rapid, the latter being completed at the end of the fifteenth week. The deeper portion of the primitive dental groove is now closed in, but that near the surface of the gum still remains open, and is called the *secondary dental groove*, from which are developed the ten anterior permanent teeth. About the fourteenth week, a depression is formed behind each of the sacs of the rudimentary milk teeth. They are formed from before backwards, and are the rudimentary follicles of the permanent teeth. The secondary dental groove closes in and the follicles become closed cavities, which elongate and recede from the surface into the gum behind the sacs of the deciduous teeth, a papilla projects from the bottom of each, which is the germ of the permanent tooth. The permanent molar teeth are developed from the primary dental groove. The rudiment of the first one is formed during the fourth month. The papilla of the second permanent molar appears at the seventh month after birth, and that of the wisdom tooth at the sixth year. It will not be necessary, for the purpose of this paper, to detail the manner of the growth of teeth; it will be sufficient to say that it is a continuous process from the seventh week of fetal life to the twenty first year after birth, when the wisdom teeth make their appearance through the gums. It will not be superfluous, however, to recount the order and time of the eruption of the milk teeth. This is set down as occurring as follows: The central incisors at the seventh month; the lateral incisors from the seventh to the tenth month; the anterior molars from the twelfth to the fourteenth month; the canines from the fourteenth to the twentieth month; and the posterior molars from the eighteenth to the thirtieth

month This is the order in which the teeth usually appear but to this there are some exceptions, and it may be interesting to relate here a few striking examples of departure from the ordinary rule.

"The younger Pliny states that the renowned Marcus Curius, Consul of the Roman Republic two hundred and seventy years before our era, had a full set of teeth at birth. This was the reason of his being named Dentatus." (A. Jacobi on "Dentition.")

Richard III, whom Shakespeare makes speak of himself as—

Cheated of feature by dissembling nature,
Deformed, unfinish'd, sent before my time
Into this breathing world, scarce half made up,"

was born with teeth, and to this circumstance was attributed his cruelty, and is thus referred to by Queen Margaret when upbraiding the Duchess of York for having given birth to so terrible a monster:

"From forth the kennel of thy womb hath crept
A hell-hound, that doth hunt us all to death,
That dog, that had his teeth before his eyes."

But the most remarkable case on record is that of a Spanish dwarf, who had all his teeth when born, and never lost one of them, got a beard in his seventh, and was a father of a son in his tenth year." (A. Jacobi on "Dentition.")

There are other cases of early dentition reported, but these will suffice. I will mention here a few cases of third dentition.

A patient of mine, an old colored woman, now about eighty years of age, at the age of seventy lost her last molar from the right lower-jaw; in a few months afterward, a new tooth appeared and still remains. In the "Medical Commentaries of 1787," this case is reported: Mary Wood, 98 years and 5 months old, suffered from asthma from early youth; she chewed tobacco

at the age of fifteen years. Half a year ago she got twelve molar teeth, eight of which still remain, though they are all somewhat loose. "A country laborer in the south of Scotland lost all his teeth by the time that he was sixty years old; about half a year afterwards a new set appeared, all of them within the space of twelve days, and they continued fresh and firm for thirty four years. He is now ninety six years of age, and within the last two years has lost three teeth." (From "Medical Commentaries, 1784.") In this connection I am permitted to say that the wife of one of the fellows of this Society has never shed her *first* lateral incisors of the upper jaw.

Of all the remarkable cases on record relating to the teeth, the following, which was reported a century and a half ago, is the most wonderful. "There lived at Leipsic a noble lady who had five children; with every confinement she cut a molar tooth. As soon as one of her new teeth got loose, the child who was born at the time when it was cut was affected with some severe disease. If such a tooth fell out, she was always certain that the corresponding child was surely going to die. And so it happened, adds our honest author, all the five children died before their mother." And Jacobi, from whom this is quoted, adds that "thus you perceive that, as it is said to be customary nowadays that children die from their own teething, it was customary for children in olden times to perish from the dental troubles of their mothers."

I have mentioned these cases of irregular dentition simply as curiosities. The important fact to keep in mind is, that normally the teeth are developing from the seventh week of fetal life up to about the twenty-first year of age. The term dentition, as ordinarily used, means the period of the eruption of the temporary teeth. And those who believe that it is a factor

in producing disease limit its causative influence to that period, that is to say, from the seventh month up to two and a half years. But if the teeth have anything to do with producing disease, would it not be reasonable to say that they so operate during the *entire time* of their development as to confine their deleterious influence to the eruptive stage? What is the peculiarity of the teeth at this eruptive stage that would lead us to believe that they had an influence in producing disease? *Nothing*, only we expect to *see* them emerge from the gums and present themselves to our *anxious* view. The growth of teeth is not different from the growth of bone elsewhere, and there is nothing in the fact that the teeth come through the gum, for this is a simple process, accomplished by the gradual growth of the teeth and no less certain absorption of the gum.

But there is no symptom, from the slightest rash upon the skin to the most profound nervous manifestation, that has not been attributed to dentition as a cause. But how does this process cause disease? There is no uniformity of sentiment upon this subject. Some refer the difficulty to *backward* pressure upon the sensitive tooth pulp. Others, and perhaps the larger class, to the *forward* pressure upon the gums. And a French writer, whose name I do not now recall, promulgated the remarkable idea that the advancing tooth produced a pruritus or tickling of the gums, that was so persistent and harassing as to completely upset the nervous system and thus produce the "many diseases of dentition." And again, Dr. Hayden, of Baltimore, years ago wrote an elaborate thesis, in which he attempted to show that the teeth were enveloped in an acrid humor, which was the fons et origo of all the trouble. With these contrary views, no one of which is supported by positive evidence, it is not difficult to

discredit all of them. The "humoral" and "titillation" hypotheses may be dismissed without discussion, and there is not the slightest evidence of any injurious pressure either "forward" or "backward" in the growth of the teeth. Forward pressure upon the gums, if such there be, would be insignificant in producing disease, as this tissue is "remarkable for its limited sensibility." There is no pressure backward upon the sensitive tooth pulp, for the tooth is pushed upward by the growth of the fang below, and there is no resistance, for the gum is as certainly absorbed in front of the advancing milk tooth as the roots of the temporary teeth disappear on the approach of the crowns of the permanent teeth.

The facts are, we grow up with the notion instilled into our minds by our mothers and nurses, and by the doctor, too, for that matter, that dentition is necessarily a painful and dangerous process, and during the *period of dentition* so many diseases do occur that it has become a *habit* to charge them to the teeth as the cause. But this is not reasonable, for nature would save the individual from harm in a process that was necessary and inevitable.

There is as great diversity of opinion as to the treatment of dentition as there is as to how it produces disease. *Soothing* application to the gums, from the old-time remedies of "blood from the recently wounded cock's comb" and "fresh brains of hares" down to the most modern local anesthetic, hydrochlorate of cocaine. All sorts of lotion and unguents, frictions with hard and soft substances. Free scarification of the gums was recommended by John Hunter and Dr. Churchill, and Marshall Hall repeated the operation as often as *several times* a day. The great Trousseau, however, said this practice was useless, and I believe the same may be said of all the other remedies proposed.

A physician is called to see a child and gets this history from the mother: Some days ago it was taken with vomiting, and soon after diarrhœa began, which has continued to this time. It has been very fretful and restless. Remembering what her mother had told her, she said she had not considered it necessary to do anything, as she thought the diarrhœa was beneficial, and suggested that, as the child was teething, the trouble was to be expected. But she was now worn out with watching and waiting, the tooth did not come through and baby was getting worse all the time, so she had been compelled to send for the doctor with the hope that he could do something to speedily relieve the little sufferer. The doctor finds, in addition to the above symptoms, that there is fever, and, upon pressure, abdominal pain. He learns also that the child nurses with great avidity, and it has been allowed to do so without stint, notwithstanding it vomits the milk soon after it is taken. Upon examining the gum he finds it swollen, lacerated, and contused over the advancing tooth. The mother explains that the poor thing was suffering so that she thought that she could help the tooth through, so she had been rubbing the gum with her rough thimble or finger-nail. The doctor will at once recognise that he has a case of entro-colitis with which to deal, but to what cause will he attribute the difficulty? Ten to one he will coincide with the suggestion of the mother, that dentition was the cause. That is the *easiest* thing to do, and it is *entirely* satisfactory to the mother. But putting aside all preconceived notions, is it reasonable? Consider the environment of the child, errors in diet, it is of an age when the mother or nurse thinks it may be taken to the table and given a "taste" of all that is before it, or it may itself pick up and swallow some offending substance. Failure to

observe the laws of hygiene, want of cleanliness, and proper clothing, atmospheric conditions, how the mother dreads the "child's second summer!" but no complaint has yet been heard against a second winter. Do the teeth hibernate?

Taking into consideration these facts that certain atmospheric conditions, bad hygiene, and errors in diet will produce the same kind of diseases in the adult as in the child, and that dentition is a *necessary* and *inevitable* physiological process, is it not more reasonable to attribute the diseases of infancy to other than a *physiological* cause?

If I have succeeded in fixing your attention upon this subject, and you will consider it deliberately, helpless infants will be spared much suffering and many lives will be saved. But so long as the physician inculcates the doctrine that the evolution of the teeth is a cause of disease, the laity will accept that doctrine, and anxious mothers will stand idly by *waiting for the coming of the teeth* and hoping the trouble will soon be over. But, alas! precious time has been lost, and too often the penalty of such neglect is the death of the child.

